BUILD AND DESIGN OF HYDRAULIC SYSTEM AS ACTUATOR IN PRESS MACHINE PRODUCING CASTOR OIL FOR THE MUTUAL MATERIAL BIODIESEL

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Abstract

Crisis of energy nowadays has demand us to continue to explore new source of new renewable alternative energy. One of the energy is biodiesel that comes from castor oil. But in other matter, extraction process of this castor seed these days still found some problems. This kind of problems can be seen in farming group of Tangguldurus, Tulungagung which still use press screw with capacities produce and its operation effectiveness is optimizeless.

Hence from that need the existence of development of appliance to overcome such problems. System of hydraulic is used as alternative in supporting extraction processes because in this system only need a small components and easy control. This Hydraulic system have a view components that arrange together like cylinder pistn, Directional Control Valve, gear pump and electric motor.

From the calculation we conclude that the pressing force to press the castor seeds is equal to 22254.75 N using cylinder specification: Operating Pressure = 14 Mpa, Max. Pressure = 210 bar, $D_{piston} = 50mm$, $D_{rod} = 28mm$, Stroke = 300mm. After the calculation above we had the pressure at cylinder equal to
133bar with pump capacities 9,42 lt using power motor 2,9 HP.

Key word: Pressure force, cylinder, pump capacity, power